Informatics

Exam Revision

Course commenced 2016

**Unit 3 – Outcome 1**

**Key knowledge (Chapter 1)**

**Data and information**

• techniques used by organisations to acquire data through their interactive online solutions and reasons for their choice

* List the techniques used to collect data online. (p9)
* Why do users supply data for online transactions? (p5)

• techniques for efficient and effective data collection

* List some techniques used to ensure effective & efficient data collection. (p13)

• characteristics of data types

* List and explain some common data types. (p22)

**Digital systems**

• physical and software security controls used by organisations to protect their data

* List and explain some techniques used for protecting valuable data. (p57)

**Approaches to problem solving**

• purposes and structure of an RDBMS, including comparison with flat file databases

* What is the purpose of a database? (p23)
* Explain the basic structure of a database by explaining the different components. (p23)
* Distinguish between a flat file and a relational database, including the advantages of each (p25)

• naming conventions to support efficient use and maintenance of an RDBMS

* Explain the purpose of using appropriate naming conventions and give some examples for a database solution. (p36)

• a methodology for creating an RDBMS structure: identifying entities, defining tables and fields to represent entities; defining relationships by identifying primary key and foreign key fields; defining data types and field sizes; normalisation to third level.

* What is the purpose of an entity relationship diagram? Create an example for the student database at school. (p28)
* Distinguish between a primary & foreign key. (p25 & 26)
* What are the common types of relationships that exist between tables? Give an example of each. (p25)
* What is the purpose of data normalisation? Explain what is required to achieve each of the first three levels of normalisation. (p30)

• design tools for describing data types and the value of entity relationship (ER) diagrams for representing the structure of an RDBMS

* Identify the purpose of each of the following RDBMS design tools: data dictionary (data structure table), IPO chart, flowcharts, data structure diagram and query diagrams. (p36)

• design principles that influence the functionality and appearance of solutions

* List the design principles. Give an example of the use of each principle when creating a database. (p15)

• design tools for representing solutions

* What design tools can be used to plan the appearance of forms & reports? (p36)

• functions and techniques within an RDBMS to efficiently and effectively validate and manipulate data

* Define validation. List some validation techniques that can be used in a database. (p42)
* Define manipulation. Outline some techniques that can be used to manipulate data in a RDBMS.

• functions and techniques to retrieve required information through searching, sorting, filtering and querying data sets

* Explain how the use of queries is the real power behind a RDBMS. (p24)
* Give some examples of criteria you could use in a query.

• methods and techniques for testing that solutions perform as intended

* What is the purpose of testing a solution? (p49)
* Distinguish between informal & formal testing. (p49)
* When is sample data developed? (p49)
* What features should be tested in a database? (p49)
* Outline the testing procedure. (p49)
* What are the advantages of using a testing table? (p49)

**Interactions and impact**

• reasons why organisations acquire data using online facilities, including 24-hour customer access, improved efficiencies through direct data entry by customers, improvements in effectiveness, and access to global markets, marketing opportunities and ongoing services

• reasons why users supply data for online transactions, including convenience, variety of choice, reducing costs

* Why do users supply data for online transactions? (p5)

• techniques used by organisations to protect the rights of individuals and organisations who supply data, including security protocols and stating privacy, shipping and returns policies

* Why is it important that the rights of individuals and organisations who supply data are protected? (p20)
* List some measures used to protect users rights. (p20)

• user flow diagrams that depict different ways in which users interact with online solutions.

* What is the purpose of a user flow diagram (UFD)? (p11)